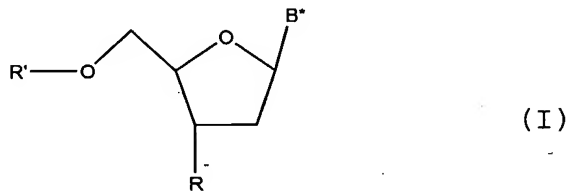


What is claimed is:

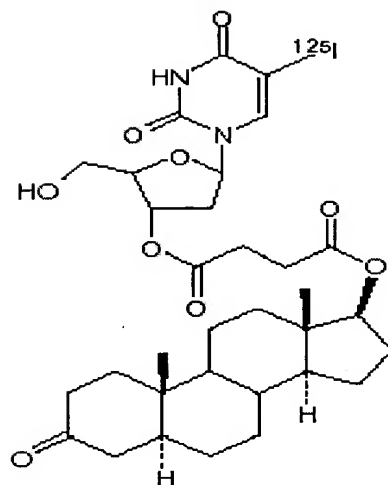
1. A cancer-specific radiolabeled conjugate of the formula:



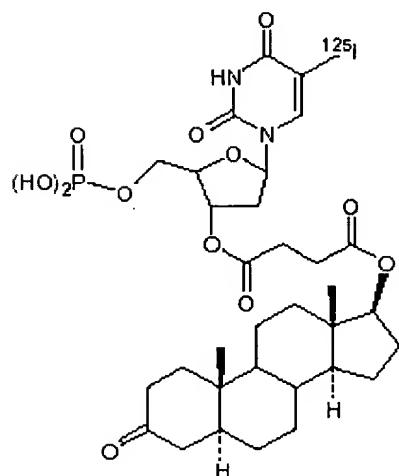
wherein B* represents thymidine substituted with a radionuclide; R represents H, OH, or O-L-DHT, L being a cleavable bifunctional linking moiety and DHT is 4-dihydrotestosterone which is bound through its hydroxyl substituent to said linking moiety; and R' represents a phospho group or a substituted phospho group having the formula - PO(OR_a)(OR_b), -PO(OR_a)(ODHT) or -PO(ODHT)₂, R_a and R_b being the same or different and representing H or lower alkyl and DHT is as previously defined, with the proviso that at least one of the R and R' substituents comprises a DHT moiety.

2. The conjugate of claim 1, wherein said radionuclide is an Auger electron-emitting radioisotope selected from the group of ¹²³I, ¹²⁵I, ⁷⁷Br, ^{80m}Br, ^{195m}Hg and ¹¹³Sn.
3. The conjugate of claim 1, wherein said radionuclide is selected from the group of ¹³¹I, ³²P, and ²²⁵At.
4. The conjugate of claim 1, wherein said radionuclide is ¹²⁵I.

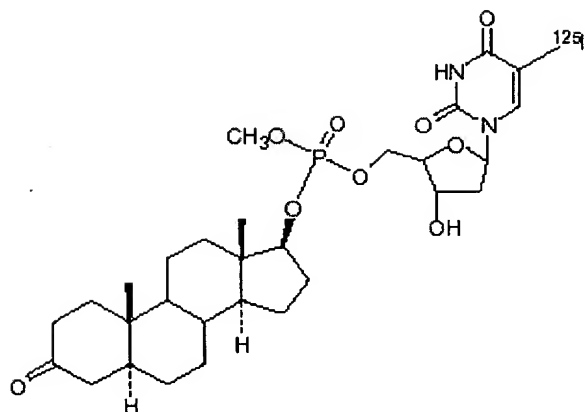
5. The conjugate of claim 1, having the formula:



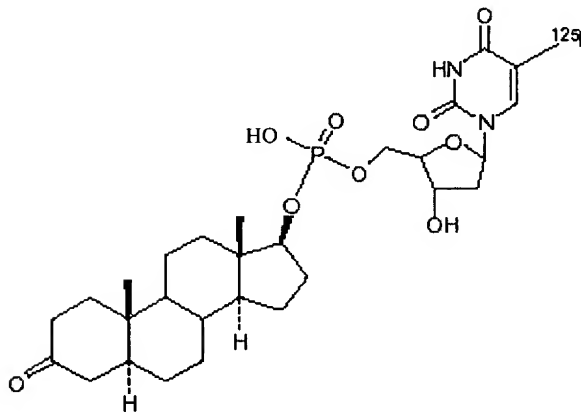
6. The conjugate of claim 1 having the formula:



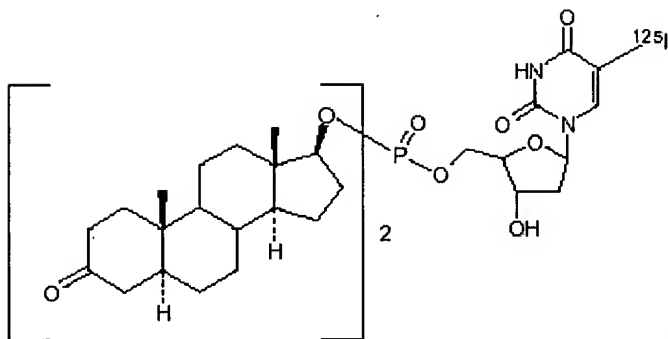
7. The conjugate of claim 1 having the formula:



8. The conjugate of claim 1 having the formula:



9. The conjugate of claim 1 having the formula:



10. A method of treatment of a malignant tumor in a patient in need of such treatment, said tumor comprising cells having androgen receptor, said method comprising administering a therapeutically effective amount of the radiolabeled conjugate of claim 1.
11. The method of claim 10, wherein said cells are prostate cancer cells.
12. The method of claim 10, wherein said cells are ovarian cancer cells.
13. The method of claim 10, wherein said cells are breast cancer cells.
14. The method of claim 10, wherein said radiolabeled conjugate is administered by a method selected from the group consisting of intravenously, intraperitoneally, and intratumor.
15. The method of claim 14, wherein said method of administration is administered intravenously.

16. The method of claim 14, wherein said conjugate is administered periodically for a term of years.
17. The method of claim 16, wherein said conjugate is administered daily.
18. A method for the diagnosis of a malignant tumor in a patient, said tumor comprising cells having androgen receptor, said method comprising administering an effective amount of a radiolabeled conjugate of claim 1, and then imagining the tumor scintigraphically.